OMB Number: 2030-0020
Expiration Date: 06/30/2024

Preaward Compliance Review Report for All Applicants and Recipients Requesting EPA Financial Assistance

Note: Read Instructions before completing form.

I. A. Applicant/Recipient (Name, Address, City, State, Zip Code)

Name: Stephen L. Williams, M.Ed., MPA.

Address: 8000 North Stadium Dr

City: Houston

State: TX: Texas Zip Code: 77054-1823

B. DUNS No. 1945865170000

II. Is the applicant currently receiving EPA Assistance? ☐ Yes ☒ No

III. List all civil rights lawsuits and administrative complaints pending against the applicant/recipient that allege discrimination based on race, color, national origin, sex, age, or disability. (Do not include employment complaints not covered by 40 C.F.R. Parts 5 and 7.)

N/A

IV. List all civil rights lawsuits and administrative complaints decided against the applicant/recipient within the last year that allege discrimination based on race, color, national origin, sex, age, or disability and enclose a copy of all decisions. Please describe all corrective actions taken. (Do not include employment complaints not covered by 40 C.F.R. Parts 5 and 7.)

N/A

V. List all civil rights compliance reviews of the applicant/recipient conducted by any agency within the last two years and enclose a copy of the review and any decisions, orders, or agreements based on the review. Please describe any corrective action taken. (40 C.F.R. § 7.80(c)(3))

N/A

VI. Is the applicant requesting EPA assistance for new construction? If no, proceed to VII; if yes, answer (a) and/or (b) below.

☐ Yes ☒ No

a. If the grant is for new construction, will all new facilities or alterations to existing facilities be designed and constructed to be readily accessible to and usable by persons with disabilities? If yes, proceed to VII; if no, proceed to VI(b).

☐ Yes ☒ No

b. If the grant is for new construction and the new facilities or alterations to existing facilities will not be readily accessible to and usable by persons with disabilities, explain how a regulatory exception (40 C.F.R. 7.70) applies.

N/A

VII. Does the applicant/recipient provide initial and continuing notice that it does not discriminate on the basis of race, color, national origin, sex, age, or disability in its program or activities? (40 C.F.R 5.140 and 7.95)	☒ Yes	☐ No
a. Do the methods of notice accommodate those with impaired vision or hearing?	☒ Yes	☐ No
b. Is the notice posted in a prominent place in the applicant's offices or facilities or, for education programs and activities, in appropriate periodicals and other written communications?	☒ Yes	☐ No
c. Does the notice identify a designated civil rights coordinator?	☒ Yes	☐ No
VIII. Does the applicant/recipient maintain demographic data on the race, color, national origin, sex, age, or handicap of the population it serves? (40 C.F.R. 7.85(a))	☒ Yes	☐ No
IX. Does the applicant/recipient have a policy/procedure for providing access to services for persons with limited English proficiency? (40 C.F.R. Part 7, E.O. 13166)	☒ Yes	☐ No

X. If the applicant is an education program or activity, or has 15 or more employees, has it designated an employee to coordinate its compliance with 40 C.F.R. Parts 5 and 7? Provide the name, title, position, mailing address, e-mail address, fax number, and telephone number of the designated coordinator.

N/A

XI. If the applicant is an education program or activity, or has 15 or more employees, has it adopted grievance procedures that assure the prompt and fair resolution of complaints that allege a violation of 40 C.F.R. Parts 5 and 7? Provide a legal citation or Internet Address for, or a copy of, the procedures.

N/A

For the Applicant/Recipient

I certify that the statements I have made on this form and all attachments thereto are true, accurate and complete. I acknowledge that any knowingly false or misleading statement may be punishable by fine or imprisonment or both under applicable law. I assure that I will fully comply with all applicable civil rights statutes and EPA regulations.

A. Signature of Authorized Official	B. Title of Authorized Official	C. Date
Stephen L Williams	Director	03/24/2022

For the U.S. Environmental Protection Agency

I have reviewed the information provided by the applicant/recipient and hereby certify that the applicant/recipient has submitted all preaward compliance information required by 40 C.F.R. Parts 5 and 7; that based on the information submitted, this application satisfies the preaward provisions of 40 C.F.R. Parts 5 and 7; and that the applicant has given assurance that it will fully comply with all applicable civil rights statures and EPA regulations.

A. *Signature of Authorized EPA Official	B. Title of Authorized Official	C. Date

*** See Instructions**

Instructions for EPA FORM 4700-4 (Rev. 06/2014)

General. Recipients of Federal financial assistance from the U.S. Environmental Protection Agency must comply with the following statutes and regulations.
Title VI of the Civil Rights Acts of 1964 provides that no person in the United States shall, on the grounds of race, color, or national origin, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving Federal financial assistance. The Act goes on to explain that the statute shall not be construed to authorize action with respect to any employment practice of any employer, employment agency, or labor organization (except where the primary objective of the Federal financial assistance is to provide employment). Section 13 of the 1972 Amendments to the Federal Water Pollution Control Act provides that no person in the United States shall on the ground of sex, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under the Federal Water Pollution Control Act, as amended. Employment discrimination on the basis of sex is prohibited in all such programs or activities. Section 504 of the Rehabilitation Act of 1973 provides that no otherwise qualified individual with a disability in the United States shall solely by reason of disability be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving Federal financial assistance. Employment discrimination on the basis of disability is prohibited in all such programs or activities. The Age Discrimination Act of 1975 provides that no person on the basis of age shall be excluded from participation under any program or activity receiving Federal financial assistance. Employment discrimination is not covered. Age discrimination in employment is prohibited by the Age Discrimination in Employment Act administered by the Equal Employment Opportunity Commission. Title IX of the Education Amendments of 1972 provides that no person in the United States on the basis of sex shall be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any education program or activity receiving Federal financial assistance. Employment discrimination on the basis of sex is prohibited in all such education programs or activities. Note: an education program or activity is not limited to only those conducted by a formal institution. 40 C.F.R. Part 5 implements Title IX of the Education Amendments of 1972. 40 C.F.R. Part 7 implements Title VI of the Civil Rights Act of 1964, Section 13 of the 1972 Amendments to the Federal Water Pollution Control Act, and Section 504 of The Rehabilitation Act of 1973. The Executive Order 13166 (E.O. 13166) entitled; "Improving Access to Services for Persons with Limited English Proficiency" requires Federal agencies work to ensure that recipients of Federal financial assistance provide meaningful access to their LEP applicants and beneficiaries.

Items "Applicant" means any entity that files an application or unsolicited proposal or otherwise requests EPA assistance. 40 C.F.R. §§ 5.105, 7.25. "Recipient" means any entity, other than applicant, which will actually receive EPA assistance. 40 C.F.R. §§ 5.105, 7.25. "Civil rights lawsuits and administrative complaints" means any lawsuit or administrative complaint alleging discrimination on the basis of race, color, national origin, sex, age, or disability pending or decided against the applicant and/or entity which actually benefits from the grant, but excluding employment complaints not covered by 40 C.F.R. Parts 5 and 7. For example, if a city is the named applicant but the grant will actually benefit the Department of Sewage, civil rights lawsuits involving both the city and the Department of Sewage should be listed. "Civil rights compliance review" means any review assessing the applicant's and/or recipient's compliance with laws prohibiting discrimination on the basis of race, color, national origin, sex, age, or disability. Submit this form with the original and required copies of applications, requests for extensions, requests for increase of funds, etc. Updates of information are all that are required after the initial application submission. If any item is not relevant to the project for which assistance is requested, write "NA" for "Not Applicable." In the event applicant is uncertain about how to answer any questions, EPA program officials should be contacted for clarification. * Note: Signature appears in the Approval Section of the EPA Comprehensive Administrative Review For Grants/Cooperative Agreements & Continuation/Supplemental Awards form.

EPA KEY CONTACTS FORM

OMB Number: 2030-0020
Expiration Date: 06/30/2024

Authorized Representative: *Original awards and amendments will be sent to this individual for review and acceptance, unless otherwise indicated.*

Name: Prefix: Mr. First Name: Stephen Middle Name: L
Last Name: Williams Suffix: M.Ed, MPA

Title: Director

Complete Address:

Street1: 8000 N Stadium Dr
Street2:
City: Houston State: TX: Texas
Zip / Postal Code: 77054-1837 Country: USA: UNITED STATES

Phone Number: 832-393-5001 **Fax Number:**

E-mail Address: stephen.williams@houstontx.gov

Payee: *Individual authorized to accept payments.*

Name: Prefix: First Name: Natalee Middle Name:
Last Name: Mallapuram Suffix:

Title: Administrative Manager

Complete Address:

Street1: 8000 North Stadium Drive
Street2: 7th floor
City: Houston State: TX: Texas
Zip / Postal Code: 77054 Country: USA: UNITED STATES

Phone Number: 832-393-4938 **Fax Number:**

E-mail Address: natalee.mallapuram@houstontx.gov

Administrative Contact: *Individual from Sponsored Programs Office to contact concerning administrative matters (i.e., indirect cost rate computation, rebudgeting requests etc).*

Name: Prefix: First Name: Kaavya Middle Name:
Last Name: Domakonda Suffix:

Title: Sr. Staff Analyst

Complete Address:

Street1: 8000 North Stadium Dr
Street2: 2nd floor
City: Houston State: TX: Texas
Zip / Postal Code: 77054 Country: USA: UNITED STATES

Phone Number: 832-393-5157 **Fax Number:**

E-mail Address: kaavya.domakonda@houstontx.gov

EPA Form 5700-54 (Rev 4-02)

EPA KEY CONTACTS FORM

Project Manager: *Individual responsible for the technical completion of the proposed work.*

Name: Prefix: | First Name: Loren | Middle Name:

Last Name: Hopkins | Suffix: Ph.D.

Title: Chief Environmental Officer

Complete Address:

Street1: 8000 North Stadium Drive

Street2:

City: Houston | State: TX: Texas

Zip / Postal Code: 77054 | Country: USA: UNITED STATES

Phone Number: 832-393-5155 | **Fax Number:**

E-mail Address: loren.Hopkins@houstontx.gov

Other Attachment File(s)

*** Mandatory Other Attachment Filename:** 1234-Letters of Commitment.pdf

Add Mandatory Other Attachment | Delete Mandatory Other Attachment | View Mandatory Other Attachment

To add more "Other Attachment" attachments, please use the attachment buttons below.

Add Optional Other Attachment | Delete Optional Other Attachment | View Optional Other Attachment

Project Narrative File(s)

*** Mandatory Project Narrative File Filename:** 1236-Project Narrative.pdf

Add Mandatory Project Narrative File | Delete Mandatory Project Narrative File | View Mandatory Project Narrative File

To add more Project Narrative File attachments, please use the attachment buttons below.

Add Optional Project Narrative File | Delete Optional Project Narrative File | View Optional Project Narrative File

OMB Number: 4040-0004
Expiration Date: 12/31/2022

Application for Federal Assistance SF-424

* 1. Type of Submission:
- [ ] Preapplication
- [x] Application
- [ ] Changed/Corrected Application

* 2. Type of Application:
- [x] New
- [ ] Continuation
- [ ] Revision

* If Revision, select appropriate letter(s):

* Other (Specify):

* 3. Date Received: 03/24/2022

4. Applicant Identifier: Loren.Raun@houstontx.gov

5a. Federal Entity Identifier:

5b. Federal Award Identifier:

State Use Only:

6. Date Received by State:

7. State Application Identifier:

8. APPLICANT INFORMATION:

* a. Legal Name: City of Houston

* b. Employer/Taxpayer Identification Number (EIN/TIN): 74-600-11640

* c. Organizational DUNS: 1945865170000

d. Address:

* Street1: 8000 North Stadium Dr
Street2:
* City: Houston
County/Parish: Harris
* State: TX: Texas
Province:
* Country: USA: UNITED STATES
* Zip / Postal Code: 77054-1823

e. Organizational Unit:

Department Name: Houston Health Department

Division Name: Environmental Health

f. Name and contact information of person to be contacted on matters involving this application:

Prefix:
* First Name: Loren
Middle Name:
* Last Name: Hopkins
Suffix: Ph.D.

Title: Interim Bureau Chief

Organizational Affiliation:

* Telephone Number: 832-393-5155
Fax Number: 832-393-5210

* Email: loren.hopkins@houstontx.gov

Application for Federal Assistance SF-424

*** 9. Type of Applicant 1: Select Applicant Type:**

C: City or Township Government

Type of Applicant 2: Select Applicant Type:

Type of Applicant 3: Select Applicant Type:

* Other (specify):

*** 10. Name of Federal Agency:**

Environmental Protection Agency

11. Catalog of Federal Domestic Assistance Number:

66.034

CFDA Title:

Surveys, Studies, Research, Investigations, Demonstrations, and Special Purpose Activities Relating to the Clean Air Act

*** 12. Funding Opportunity Number:**

EPA-OAR-OAQPS-22-01

* Title:

Enhanced Air Quality Monitoring for Communities

13. Competition Identification Number:

Title:

14. Areas Affected by Project (Cities, Counties, States, etc.):

Add Attachment | Delete Attachment | View Attachment

*** 15. Descriptive Title of Applicant's Project:**

Enhanced Air Quality Monitoring in High Risk Houston EJ Communities through Local Government and Community Partnership

Attach supporting documents as specified in agency instructions.

Add Attachments | Delete Attachments | View Attachments

Application for Federal Assistance SF-424

16. Congressional Districts Of:

* a. Applicant: TX-009 * b. Program/Project: TX-009

Attach an additional list of Program/Project Congressional Districts if needed.

Add Attachment | Delete Attachment | View Attachment

17. Proposed Project:

* a. Start Date: 11/01/2022 * b. End Date: 10/31/2025

18. Estimated Funding ($):

* a. Federal	499,982.00
* b. Applicant	67,085.20
* c. State	0.00
* d. Local	0.00
* e. Other	0.00
* f. Program Income	0.00
* g. TOTAL	567,067.20

*** 19. Is Application Subject to Review By State Under Executive Order 12372 Process?**

☐ a. This application was made available to the State under the Executive Order 12372 Process for review on .

☐ b. Program is subject to E.O. 12372 but has not been selected by the State for review.

☒ c. Program is not covered by E.O. 12372.

*** 20. Is the Applicant Delinquent On Any Federal Debt? (If "Yes," provide explanation in attachment.)**

☐ Yes ☒ No

If "Yes", provide explanation and attach

Add Attachment | Delete Attachment | View Attachment

21. *By signing this application, I certify (1) to the statements contained in the list of certifications and (2) that the statements herein are true, complete and accurate to the best of my knowledge. I also provide the required assurances** and agree to comply with any resulting terms if I accept an award. I am aware that any false, fictitious, or fraudulent statements or claims may subject me to criminal, civil, or administrative penalties. (U.S. Code, Title 218, Section 1001)**

☒ ** I AGREE

** The list of certifications and assurances, or an internet site where you may obtain this list, is contained in the announcement or agency specific instructions.

Authorized Representative:

Prefix: Mr. * First Name: Stephen

Middle Name: L

* Last Name: Williams

Suffix: M.Ed., MPA

* Title: Director

* Telephone Number: 832-393-5001 Fax Number: 832-393-5259

* Email: stephen.williams@houstontx.gov

* Signature of Authorized Representative: Stephen L Williams * Date Signed: 03/24/2022

BUDGET INFORMATION - Non-Construction Programs

OMB Number: 4040-0006
Expiration Date: 02/28/2022

SECTION A - BUDGET SUMMARY

Grant Program Function or Activity (a)	Catalog of Federal Domestic Assistance Number (b)	Estimated Unobligated Funds		New or Revised Budget		
		Federal (c)	Non-Federal (d)	Federal (e)	Non-Federal (f)	Total (g)
1. Enhanced Air Quality Monitoring for Communities	66.034	$	$	$ 499,982.00	$ 67,085.00	$ 567,067.00
2.						
3.						
4.						
5. Totals		$	$	$ 499,982.00	$ 67,085.00	$ 567,067.00

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SECTION B - BUDGET CATEGORIES

6. Object Class Categories	GRANT PROGRAM, FUNCTION OR ACTIVITY (1) Enhanced Air Quality Monitoring for Communities	(2)	(3)	(4)	Total (5)
a. Personnel	$ 100,244.00	$	$	$	$ 100,244.00
b. Fringe Benefits	55,134.20				55,134.20
c. Travel	2,610.00				2,610.00
d. Equipment	28,000.00				28,000.00
e. Supplies	60,000.00				60,000.00
f. Contractual	161,000.00				161,000.00
g. Construction					
h. Other	75,050.00				75,050.00
i. Total Direct Charges (sum of 6a-6h)	482,038.20				$ 482,038.20
j. Indirect Charges	17,944.00				$ 17,944.00
k. TOTALS (sum of 6i and 6j)	$ 499,982.20	$	$	$	$ 499,982.20
7. Program Income	$ 0.00	$	$	$	$ 0.00

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Prescribed by OMB (Circular A -102) Page 1A

SECTION C - NON-FEDERAL RESOURCES

(a) Grant Program	(b) Applicant	(c) State	(d) Other Sources	(e)TOTALS
8. Enhanced Air Quality Monitoring for Communities	$ 67,085.20	$	$	$ 67,085.20
9.				
10.				
11.				
12. TOTAL (sum of lines 8-11)	$ 67,085.20	$	$	$ 67,085.20

SECTION D - FORECASTED CASH NEEDS

	Total for 1st Year	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter
13. Federal	$ 329,750.94	$ 164,127.00	$ 54,708.90	$ 54,708.90	$ 56,206.14
14. Non-Federal	$ 33,930.60	8,482.65	8,482.65	8,482.65	8,482.65
15. TOTAL (sum of lines 13 and 14)	$ 363,681.54	$ 172,609.65	$ 63,191.55	$ 63,191.55	$ 64,688.79

SECTION E - BUDGET ESTIMATES OF FEDERAL FUNDS NEEDED FOR BALANCE OF THE PROJECT

(a) Grant Program	FUTURE FUNDING PERIODS (YEARS) (b)First	(c) Second	(d) Third	(e) Fourth
16. Enhanced Air Quality Monitoring for Communities	$ 329,751.00	$ 170,231.00	$	$
17.				
18.				
19.				
20. TOTAL (sum of lines 16 - 19)	$ 329,751.00	$ 170,231.00	$	$

SECTION F - OTHER BUDGET INFORMATION

21. Direct Charges: 482,038

22. Indirect Charges: 17,944

23. Remarks:

Appendix A: References

n.a. (2011). Emissions Reductions: TPC Group Houston Plant Experience. *TPC.* Retrieved from: https://www.epa.gov/sites/default/files/2015-01/documents/2011_06_tpc.pdf.

Environmental Protection Agency Integrated Risk Information System (IRIS). (n.d.). Benzene CASRN 71-43-2 | DTXSID3039242. EPA. Retrieved from https://iris.epa.gov/ChemicalLanding/&substance_nmbr=276

Environmental Protection Agency Integrated Risk Information System (IRIS). (n.d.). 1,3-Butadiene CASRN 106-99-0 | DTXSID3020203. EPA. Retrieved from https://cfpub.epa.gov/ncea/iris2/chemicalLanding.cfm?substance_nmbr=139

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n.a. (2021). Example A: Notice of Public Meeting for Air Quality Permits. TPC Group, LLC. *Texas Comission on Environmental Quality*. Retrieved from: https://www.tceq.texas.gov/assets/public/comm_exec/pm-ph/notices/2021/2021-08-12-tpc-group-llc-22052-psdtx1578-n286-ghgpsdtx201-et-al-pm.pdf

Millipore Sigma. 2016. US EPA Method 325B Compliance. Passive Fenceline Sampling Solution for Benzene and Other VOCs. Webinar https://www.sigmaaldrich.com/US/en/technical-documents/protocol/analytical-chemistry/gas-chromatography/us-epa-method-325b-compliance. Accessed March 2022.

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n.a. (2015). Method 325B—Volatile Organic Compounds from Fugitive and Area Sources: Sampler Preparation and Analysis. EPA. Retrieved from: https://www.epa.gov/sites/default/files/2016-07/documents/m-325b.pdf.

Oliver, K., Cousett, T., Whitaker, D. (2017). Sample integrity evaluation and EPA method 325B interlaboratory comparison for select volatile organic compounds collected diffusively on Carbopack X sorbent tubes. Atmospheric Environment. 163. 99-106. DOI: https://doi.org/10.1016/j.atmosenv.2017.05.042.

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Raun L, Jefferson L, Persse D, Ensor K. 2013. Geospatial Analysis for Targeting Out-of-Hospital Cardiac Arrest Intervention. American Journal of Preventive Medicine. https://doi.org/10.1016/j.amepre.2013.03.013

Scarafile, A. (2019). Picarro G2307 Formaldehyde Analyzer Standard Operating Procedure. SOP No. MM-2. City of Houston. Internal Document.

Sexton, K., Linder, S., Abramson, S., et. al. (2006). A closer look at air pollution in Houston: identifying priority health risks report of the mayor's task force on the health effects of air pollution. *Institute for Health Policy, University of Texas Health Science Center at Houston.*

Thoma, E., Brantley,H., Oliver, K., et. al (2016). South Philadelphia passive sampler and sensor study. Journal of the Air & Waste Management Association, 66:10, 959-970, DOI: 10.1080/10962247.2016.1184724

United States Environmental Protection Agency. (2022). TRI Explorer (2020 National Analysis Dataset (October 2021, released October 2021)) [Internet database]. Retrieved from https://enviro.epa.gov/triexplorer/, (March 23, 2022).

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Watkins, K. (2021). 'We've Had Enough': Environmental Groups Raise Concerns About Chemical Plant's Proposed Expansion In Houston's East End. *Houston Public Media*. Retrieved from: https://www.houstonpublicmedia.org/articles/news/energy-environment/2021/08/13/405908/weve-had-enough-environmental-groups-raise-concerns-about-chemical-plants-proposed-expansion-in-houstons-east-end/

Manifest for Grant Application # GRANT13579699

Grant Application XML file (total 1):

1. GrantApplication.xml. (size 26555 bytes)

Forms Included in Zip File(total 6):

1. Form ProjectNarrativeAttachments_1_2-V1.2.pdf (size 16010 bytes)

2. Form SF424_3_0-V3.0.pdf (size 24338 bytes)

3. Form SF424A-V1.0.pdf (size 23082 bytes)

4. Form EPA4700_4_3_0-V3.0.pdf (size 22764 bytes)

5. Form OtherNarrativeAttachments_1_2-V1.2.pdf (size 15996 bytes)

6. Form EPA_KeyContacts_2_0-V2.0.pdf (size 37489 bytes)

Attachments Included in Zip File (total 5):

1. OtherNarrativeAttachments_1_2 OtherNarrativeAttachments_1_2-Attachments-1235-COH FY20 IDC Rate Agreement Executed - Health Department.pdf application/pdf (size 1014810 bytes)

2. OtherNarrativeAttachments_1_2 OtherNarrativeAttachments_1_2-Attachments-1234-Letters of Commitment.pdf application/pdf (size 1708812 bytes)

3. ProjectNarrativeAttachments_1_2 ProjectNarrativeAttachments_1_2-Attachments-1237-Quality Assurance for Houston.pdf application/pdf (size 113816 bytes)

4. ProjectNarrativeAttachments_1_2 ProjectNarrativeAttachments_1_2-Attachments-1238-References.pdf application/pdf (size 146400 bytes)

5. ProjectNarrativeAttachments_1_2 ProjectNarrativeAttachments_1_2-Attachments-1236-Project Narrative.pdf application/pdf (size 814206 bytes)

Attachment: Quality Assurance

Personnel: The personnel in charge of Quality assurance will be Peter Chen, Chemist IV and a Chemist III that will be working with him. These two individuals already have sampling experience and will be familiar with the quality assurance and quality controls for the department. The department prioritizes quality and is keen on all members adhering to protocol. Furthermore, both Mr. Chen and the Chemist III will also be trained on any new equipment to minimize the errors as well.

Quality Management Plan: HHD will develop a quality management plan (QMP) covering the proposed air monitoring utilizing EPA method 325B, the Picarro, and the AROMA VOC monitor. The QMP will address best practices, quality assurance, equipment specific methods and mechanisms, as well as identify key personnel for each sampling procedure.

Method 325B: Method 325 is the EPA document for the passive sampling of the "Volatile Organic Compounds from Fugitive and Area Sources." Method 325 will be used to passively monitor benzene and 1,3-butadiene at 9 locations in the community, and fenceline continuously (changed out every two weeks) for a year.

Prior to community monitoring, sampler and analysis validation will be conducted by co-locating two passive samplers at the TCEQ fixed site Milby Park and Clinton Drive monitor for up to six weeks. Data will be analyzed and compared against the TCEQ monitors to validate readings. If needed, troubleshooting/adjustments will be made, and additional co-location implemented until data are comparable within the expected range of the method. After the co-location assessment, monitoring will be initiated at the 9 identified locations. Following the sampling period in the communities, the tubes are sent to lab for analysis. The lab has its own QA protocols in place in terms of data quality, and will apply those to the samples. The lab will also recondition the tubes for reuse.

Bureau of Pollution Control and Prevention Chemist IV's will be available as needed to analyze samples collected using EPA Method 352B via GC/MS in the Mobile Ambient Air Monitoring Laboratory (MAAML). Chemists will also be available to review and analysis and data from Picarro and Aroma monitors. Chemists will abide by current BPCP SOP's and QA protocols.

Tube Reconditioning: Tubes will be conditioned by using "Marks R-TC20" tube conditioner at 350 degree C for 2hr by using nitrogen as carrier gas at 100ml/min. Criteria for Reuse: a) Conditioned tubes must be demonstrated to be free of contaminants and interference by running 10 percent of the blank tubes selected at random from each conditioned batch under standard sample analysis conditions. b) Confirm that artifacts and background contamination are ≤ 0.2 ppbv or less than three times the detection limit of the procedure or less than 10 percent of the target compound(s) mass that would be collected if airborne concentrations were at the regulated limit value, whichever is larger. Only tubes that meet these criteria can be used for field monitoring, field or laboratory blanks, or for system calibration. c) If unacceptable levels of VOCs are observed in the tube blanks, then the processes of tube conditioning and checking the blanks must be repeated.

Picarro Monitor: The Picarro monitor will be used to monitor formaldehyde at the TCEQ fixed stie Milby Park monitor. It utilizes optical absorption spectroscopy to determine the concentration of target gases within the sample. The Picarro works in conjunction with a pump, which takes in the air sample and passes it through the Picarro monitor. HHD's standard operating procedure (SOP) document for Picarro

outlines calibration and data quality control mechanisms. The SOP was developed under a previous EPA grant, EPA-OAR-OAQPS-17-03, Community-Scare Air Toxics Ambient Monitoring, thus leveraging existing resources.

AROMA: The AROMA VOC monitor will be used to measure ambient ethylene oxide levels. All analyzers used for mobile data collection have a valid multi-point calibration and ongoing calibration verification. A full multi-point calibration consists of triplicate measurements at five concentrations across the span range of the instrumentation (0.01-100 ppbv, or higher upon request) and three instrument blanks. Multi-point calibration should be repeated until EPA Method TO-15A initial calibration criteria are achieved for the instrumentation. Method detection limits are determined using seven or more replicates at ~5 standard deviations above instrument baseline noise as per EPA Method 301.

After initial calibration, ongoing calibration verification should be performed using instrument blanks and Continuing Calibration Verification (CCV) measurements. Ongoing calibration measurements should be performed at the start and end of an instrument mobilization including daily bracketing CCV measurements. CCV measurements can be performed using the calibration port via the built-in calibration point on the analyzer. CCV acceptance criteria is 30% as per EPA Method TO-15A. In the absence of failed CCV, annual instrument calibrations should be performed.
The AROMA-ETO has several Data Quality Indicators (DQIs), which monitor sampling flow, sampling pressure, core flow, core pressure, collector and focus temperatures, laser lock voltage and laser transmission amplitude during data collection, and then in data analysis the elution time and spectral match are used to validate analyzer data.

Narrative Proposal

Summary Information Page

a. Project Title: Enhanced Air Quality Monitoring in High-Risk Houston EJ Communities through Local Government and Community Partnership

b. Applicant: City of Houston
Contact Person: Loren Hopkins, PhD
Address: 8000 N. Stadium Dr., 2nd Floor, Houston, Texas 77054
Phone: 832-393-5155, Fax: 832-393-5210
Email: loren.hopkins@houstontx.gov

Budget Summary:

EPA Funding Requested	Total Project Cost
$499,982.00	$567,067.00

e. Project period. Nov. 2022 – Oct. 2024

f. DUNS number - 1945865170000

g. Set-Aside: no set-aside

h. Brief Description of Applicant Organization: The Houston Health Department is accredited by the Public Health accreditation board. The mission of the Houston Health Department is to work in partnership with the community to promote and protect the health and social well-being of Houstonians and the environment in which they live.

i. Project Partner(s) (if applicable):

- Partner Organization: Air Alliance Houston
- Primary Contact Name: Jennifer Hadayia
- Partner Organization: Environmental Defense Fund
- Primary Contact: Elena Craft
- Partner Organization: Environmental Integrity Project
- Primary Contact: Ilan Levin
- Partner Organization: Houston Botanic Gardens
- Primary Contact: Claudia Gee Vassar

j. Project Location: Meadowbrook/Allendale, Park Place, and Pecan Park super neighborhoods in Houston TX. ZIP Codes: 77012 and 77017.

k. Air Pollutant Scope: Benzene, 1,3-Butadiene, Formaldehyde, Ethylene Oxide

l. Short Project Description: Community monitoring of four hazardous air pollutants identified that pose risk to communities. Three sampling methods will be used to monitor the pollutants, and the community will work with community partners for actionable outputs such as education programs.

Application Review Information

1. Project Summary and Approach (30 points):

A. Overall Project (20 Points)

The environmental justice communities of Meadowbrook/Allendale, Pecan Park, and Park Place are very concerned about unhealthy levels of cancer-causing hazardous air pollutants, specifically, 1,3-butadiene, benzene, formaldehyde, and ethylene oxide. EPA's national air toxics assessment (NATA, 2014) (note: all references are attached in Appendix A: References) indicates that the cancer risk in these areas is 57 cases in a million people. Using 2021 1,3-butadiene data monitoring data, the total risk increased by 218% to 125 cases in a million people. Figure 1 is a pie chart indicating the contribution of the top hazardous air pollutants (HAPs) to the total risk in the area, according to 2014 NATA data.

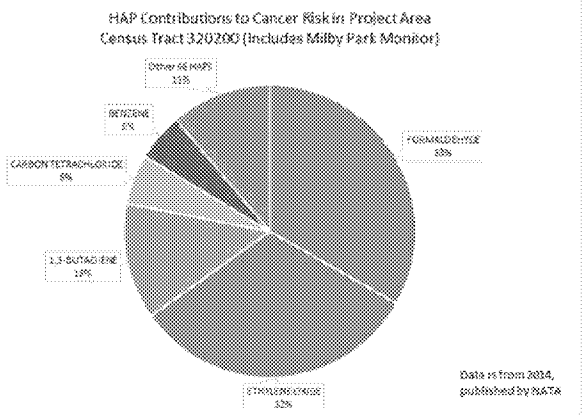


Figure 1. Hazardous Air Pollutant contributions to Total Cancer Risk in Project Area (2014 data)

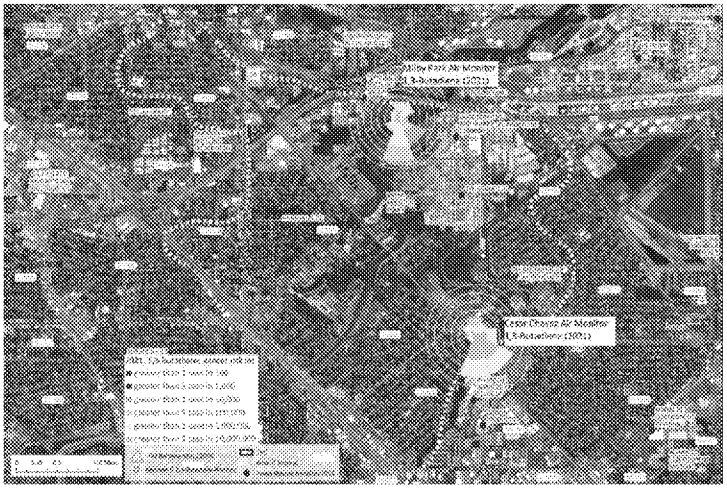


Figure 2. Study area, wind roses indicating concentration related cancer risk from 1,3-butadiene if chronic by wind direction at Milby Park and Cesar Chavez fixed site monitors, location of TPC/Goodyear area, other sources, residential areas

These communities share the fenceline with, or are in close proximity to, the largest emission sources of 1,3-butadiene in Houston, the Texas Petrochemical (TPC) and Goodyear plants (TRI Explorer, 2020) (Figure 2). For this reason, 1,3-butadiene is of heightened concern and has been a high priority issue for both the community and the Houston Health Department for over a decade when TPC installed fenceline monitoring between TPC and Goodyear to identify emission events quickly as part of an agreed order (TPC, 2011). However, mean 1,3-butadiene concentrations increased during 2021 (922%), putting into question monitoring effectiveness, if TPC is the source. Regardless of the source of the elevated concentrations, albeit a single source or cumulative impacts, HHD data indicates that the highest hourly concentrations are recorded when the Milby Park fixed site monitor or the Cesar Chavez fixed site monitor are downwind the TPC/Goodyear area (Figure 3). These emissions are expected to increase even further as TPC has applied for a permit to expand operations (Watkins, 2021; Example A, 2021). The seriousness, extent and urgency are described further in the Project Significance Section.

Cancer risk from benzene is also of concern in the area. It has been identified as a top, "Definite Risk" pollutant for the City of Houston (Sexton et. al, 2006). Both benzene and 1,3-butadiene pose risk for the same type of cancer, leukemia (EPA IRIS: 1,3-Butadiene, EPA IRIS: Benzene) but how exposure to two different pollutants associated with leukemia affects the risk is unknown (i.e., additive, multiplicative, or synergistic in some capacity).

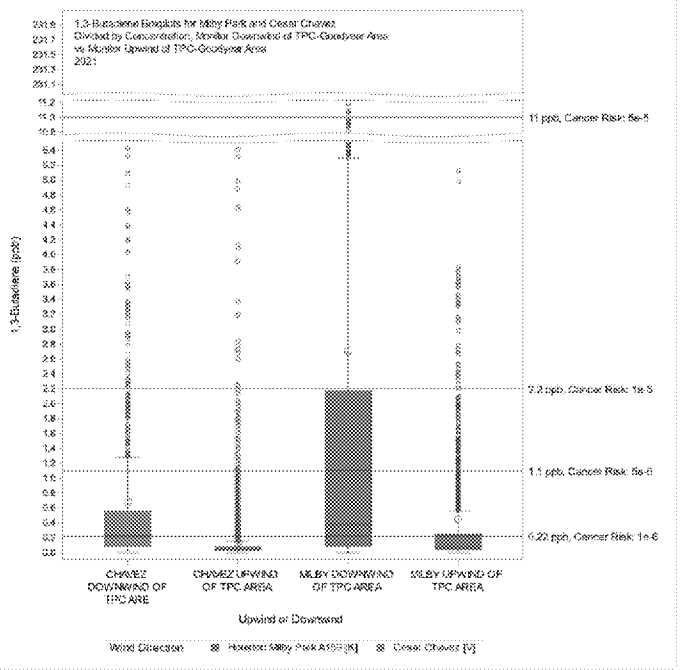


Figure 3. Boxplots of 1,3-butadiene concentrations in relation to cancer risk limits at Milby Park and Cesar Chavez when the monitors or up or downwind of the TPC/Goodyear area

Further, EPA's National Air Toxics Assessment (NATA, 2014) indicates formaldehyde and ethylene oxide are large contributors to total cancer risk in the community. There is very little information on concentrations of ambient concentrations of formaldehyde in the area and no information for ethylene oxide.

Given these concerns, local environmental and grassroots groups (Air Alliance Houston, Houston Wilderness, Community Lattice), neighborhood groups (Botanic Gardens), schools (Milby and Chavez High School), and a city council member (CM Gallegos), with help from national environmental groups (Environmental Defense Fund and Environmental Integrity Project) are partnering with the local government, Houston Health Department (HHD), in order to monitor these hazardous air pollutants. Specifically, the partnership will support community and local efforts to monitor their own air quality and to promote air quality providing information and ideas to assist regulators in their efforts to assess the impact of emission reduction measures.

The project has two components, monitoring, and education/action, each to be carried out in partnership with the health department and community partners. An important outcome, along with data, education and making change or providing information as a catalyst for regulatory change, is enhanced communication and trust between the community and the local government. With these goals in mind, each component is crafted to be jointly led by the health department and community partnership as a team.

Component 1: Monitoring

The first year of the project will consist of monitoring four of the five hazardous air pollutants of greatest concern:1,3-butadiene, benzene, formaldehyde, and ethylene oxide. The monitoring will consist of three approaches.

Monitoring Approach 1 (1,3-butadiene and benzene):

What? Concentrations in the community between the Milby Park and the Cesar Chavez fixed site monitors around the TPC and Goodyear plants will be monitored for one year to reflect long term chronic concentration levels of benzene and 1,3-butadiene.
Why? Both the Milby Park and Cesar Chavez monitors currently measure benzene and 1,3-butadiene. The data indicate a shared hot spot between the monitors during 2021 that was not reflected in TPC STEERS reports or resolved with fenceline monitoring. This monitoring effort will provide more granular information in the neighborhoods and surrounding areas of the sources. The information will be used to (1) inform where the elevated levels originate, (2) provide data for regulators to compare against fenceline monitoring and use in evaluation of the effectiveness of fenceline monitoring and (3) provide a baseline of concentration levels prior to TPC expansion.
Where? Nine community locations will be selected by the community for yearlong sampling with passive samplers (e.g., homes, Milby High school, Houston Botanic Garden).

When? Samplers will be deployed for two-week periods. Each time samplers are retrieved for analysis; they will be substituted with new samplers so that each location is continuously monitored for one year with minimal interruption during the first year of the grant.
How? Sampling will be conducted using the passive samplers as recommended by EPA in the refinery rule. Method 325B describes the passive samplers and analysis method. These same samplers are able to handle many of the hazardous air pollutants listed in the Clean Air Act Amendments of 1990 (EPA, 2015). At the time of publication of the methodology, benzene was the only HAP being considered listed, but recent research indicates that this method can be expanded to include 1,3-Butadiene (Oliver et. al, 2017; Mukerjee et al. 2020). In terms of analysis, thermal desorption or gas chromatography (mass spectrometer) are recommended, though other gas chromatographs such as photoionizers or electron capture can be used as long as the methods are sensitive to the target HAP (EPA, 2015).

The health department will purchase the samplers and leverage existing resources to conduct the analysis in house. The community partnership will identify the locations and work with the health department to mount and secure the samplers. Milby and Chavez High School community member grant funded interns will retrieve and replace the samplers every two weeks and map the concentrations. The interns will also serve on the city's environmental youth council, leveraging structure from this existing program.

Monitoring Approach 2 (ethylene oxide):

What? Concentrations in the community around and between the Milby Park and the Cesar Chavez fixed site monitors, especially around TPC and Goodyear, will be monitored for 30 days to provide the baseline measurement of ethylene oxide in the community.
Why? Neither the Milby Park nor the Cesar Chavez fixed site monitors currently measure ethylene oxide and yet data from NATA indicate that it is the chemical contributing the second highest percent of the total cancer risk to the area.
Where? A community-focused mobile monitoring driving route will be designed by the community and driven repeatedly during a sampling day. The community will advise on route modifications, as needed, to explore hot spots or events.
When? Mobile monitoring will be conducted for 30 days total throughout the first year.
How? Sampling will be conducted via mobile monitoring, leveraging the health department's autonomous rugged optimal multi gas analyzer (AROMA) volatile organic compound (VOC) equipment and Nissan Leaf—currently used to mobile monitor for benzene, toluene, ethylbenzene, and xylene. The AROMA will be upgraded to measure ethylene oxide. The ethylene oxide upgrade will add an additional separation system for light molecules that is an external module. When in use, this module will replace the standard focuser, and the analyzer will be analyzing for lighter molecules than benzene, including light alkanes and some alkenes and alcohols.

Community member grant funded interns will ride with environmental investigators and assist in mobile monitoring. The interns will map the data with assistance from health department environmental statisticians. See student intern description in Approach 1.

Monitoring Approach 3 (formaldehyde):

What/Where? Concentrations of formaldehyde will be measured for one year at or in the vicinity of the Milby Park fixed site monitor.
Why? Neither the Milby Park nor the Cesar Chavez fixed site monitors currently measure formaldehyde and yet data from NATA indicate that it is the chemical contributing the highest percent of the total risk to the area.
When? The location will be continuously monitored for one year during the first year of the grant.
How? Monitoring will be conducted leveraging existing expertise and resources previously purchased on an EPA grant using the Picarro. The Picarro instrument, with data validated in Houston against the aerolaser, utilizes "time-based, optical absorption spectroscopy." The effective distance the light travels through the cavity-ring down spectroscopy being utilized in the Picarro is such that the analysis is up to one million more times sensitive than infrared spectrometers (Scarafile, 2019). The Picarro connects to a computer screen, and the built-in

software can be used to control analysis operations after the pump has been turned on, connected, and calibrated (Scarafile, 2019).

The health department will secure the location for the Picarro. If the state regulatory agency does not allow the instrument to be placed in the Milby Park fixed site monitor trailer, the equipment will be housed in a grant-funded, air-conditioned trailer. Community member grant funded interns will accompany the health department environmental investigator in setting up, calibrating, and retrieving data. The interns will map the data with assistance from health department environmental statisticians. See student intern description in Approach 1.

Component 2: Education and Action

The collaboration between the health department and community partnership will work together to expand the understanding of air pollution causes, significance, and sustainable solutions using a multi-pronged approach.

Education: As discussed in Component 1, Milby and Chavez High School community member grant funded interns will work alongside the community organization and health department environmental investigators and statisticians in each air monitoring activity. The interns will learn the intricacies of sampling using different methods and participate in the interpretation and mapping of the results. They will also present findings to the mayor's environmental youth council, of which they are a part of, and present findings at a community meeting after the first year of the project.

Community members will learn about different types of air monitoring as they identify locations to host monitors, and routes to drive for mobile monitoring. They will have regular access to health department environmental investigators, environmental statisticians, and the community group leaders in meetings to discuss sampling, how to interpret the findings, and how to use the findings to support solutions. There will be two meetings annually, four meetings total in the project period. The meetings will be held once every 6 months.

The data will be uploaded, using a phone app with access to "Survey 1,2,3," and mapped leveraging an existing air pollution mapping platform developed under a previous CDC grant. The intern will be trained to upload and map the data. The community members will also be offered training.

AAH will serve as a lead connector to residents and leaders to convey the project significance and value to the communities and to enlist their direct participation as air monitor hosts and spokespeople. Air monitor hosts will receive training from AAH as Air Quality Ambassadors using a proven curriculum designed for community air monitoring volunteers. They will also be convened routinely in an advisory role to provide feedback on project design and implementation. Once data are collected, the ambassadors will have opportunities to assist with interpretation based on their lived experience in Meadowbrook/Allendale, Pecan Park, and Park Place and then assist with the creation of local Action Plans for the improvement of air quality in their neighborhoods. In addition, and for the purposes of further transparency and engagement with the community, HHD and partners will identify as many venues and opportunities as possible to present the project and hear directly from residents.

Action: Environmental Integrity Project (EIP) will advise the community and grant partners regarding sustainable solutions to air quality concerns based on the proposed air monitoring, including how to bring the information to the attention of lawmakers, what local sector air permits allow, what legislative or policy changes are applicable, what kinds of changes will result in cleaner air and how to support these changes. Depending upon the results of the monitoring, EIP's efforts may include guidance on tracking relevant bills through the Texas legislative session and what to include in testimony at committee hearings. The skills the communities learn will continue to benefit the community in the future, beyond this project (written recommendations, three community meetings). In addition to emission reduction, Houston Wilderness will advise the community and businesses on the use of ecosystem benefits of targeted native trees for pollution reduction according to data generated from this proposal, and facilitate and implement large-scale native *Super Tree* plantings in the community for this purpose (written recommendations, one community meeting).

B. Project Significance (10 pts)

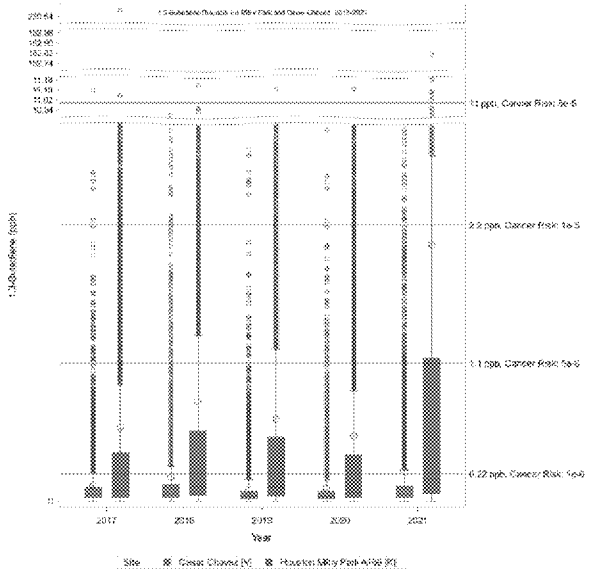


Figure 4. Boxplots of 1,3-Butadiene at Milby Park and Cesar Chavez monitors over the years with statistically significant increase in 2021 at Milby Park

Seriousness: The proposed project is focused on: (1) enhancing monitoring, (2) education, and (3) sustainable solutions to air pollution in the environmental justice challenged communities of Meadowbrook/Allendale, Park Place, and Pecan Park. These communities are experiencing higher concentrations of cancer-causing hazardous air pollutants--specifically, 1,3-butadiene, benzene, formaldehyde, and ethylene oxide--compared to other parts of the city. In 2021 alone, the Houston Health Department received over 40 air pollution complaints in the area ZIP codes. EPA's NATA (2014) indicates the cancer risk in this area is 57 cases in a million people, and using 2021 1,3-butadiene Milby Park fixed site monitor data, this risk increases by 218% to 125 cases in a million people.

Extent: The proposed enhanced monitoring addresses four of the top five pollutants posing the greatest risk according to NATA. The monitoring will provide an annual spatial understanding of 1,3-butadiene and benzene that can be used for assessing chronic exposure, a baseline for future comparison as industrial expansion occurs, and a means to assess the effectiveness of fenceline monitoring. Furthermore, there will be supporting information of the level of formaldehyde, which is not measured at either nearby monitor, and the first information on ethylene oxide, upon which decisions can be made to expand monitoring. The project extends beyond fenceline monitoring efforts by enhancing community monitoring, educating the community on interpreting monitoring data, building trust between local government and the community by working side-by-side, but also identifying sustainable solutions to air pollution and supporting these changes with data.

Urgency: Limiting cancer risk posed from air pollution exposure in EJ fenceline communities is an urgent need in Houston. There are four specific immediate concerns in the project area as demonstrated with 1,3-butadiene. First, the 1,3-butadiene levels at the Milby Park fixed site monitor are *increasing*; concentrations were statistically significantly higher last year (2021) compared to previous years (Figure 4), with the mean of 2021 being 922% higher than the value used in NATA. A closer look at the 2021's data indicates that the elevated concentrations are not a directly correlated/consequence of winter storm Uri in February, as the highest concentrations occurred during May, followed by March and October (Figure 5). This is a major concern for the community given that over a decade ago, fenceline monitoring was initiated as part of an agreed order to address these unpermitted

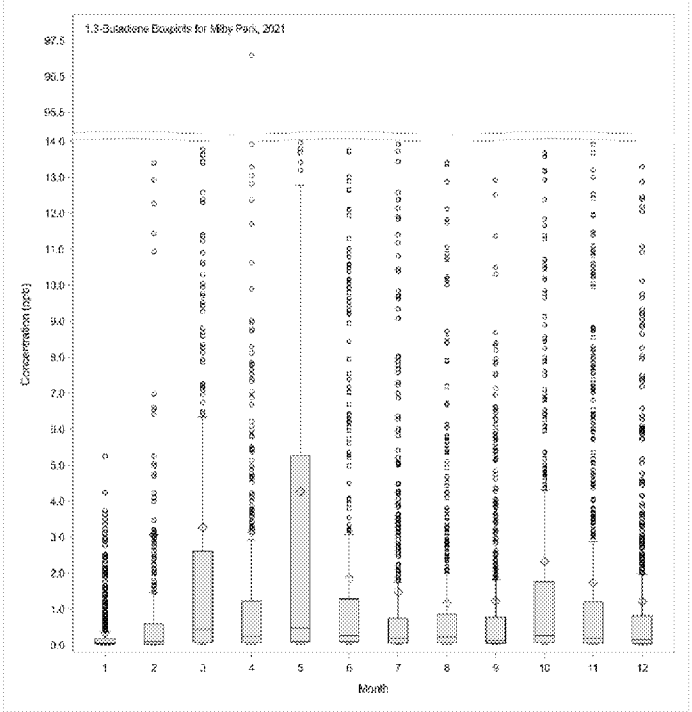


Figure 5. Boxplots of 1,3-Butadiene concentration in 2021 by month at Milby Park Monitor with highest concentrations in May

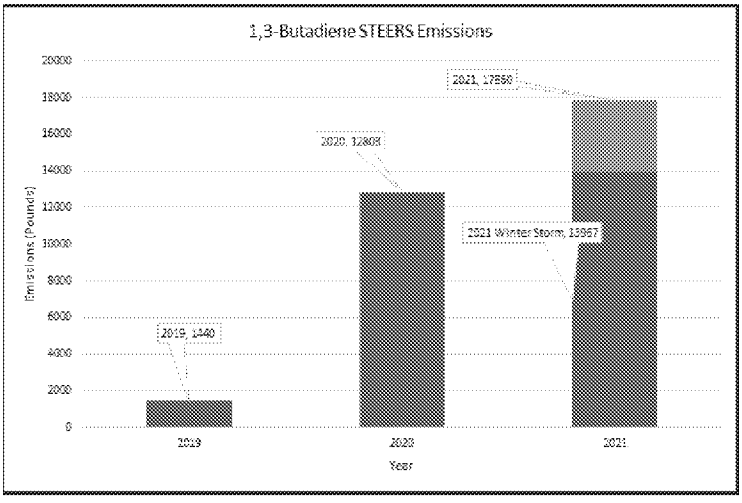


Figure 6. Annual TPC 1.3-Butadiene STEERS Emissions

emission events quickly. Second, the significant increase calls into question the effectiveness of the fenceline monitoring, if the source is TPC or Goodyear. If it is not, this work will identify a new source that needs identification and control. Third, the annual STEERS reports from TPC do not correlate with the monitor increases (Figure 6). STEERS annual emissions were higher in 2019 than 2020 but the concentrations at the regulatory monitors were higher in 2020 than 2019. In 2021, only 5000 lbs of emissions were reported after the winter storm when concentrations peaked in May. Therefore, emissions may occur that are not known by the local sector or are not reported properly. Fourth, TPC has applied for a permit to expand operations. The community opposes the permit because there is already elevated cancer risk that is constantly increasing over time, and both STEERS and fenceline monitoring have not resolved the risks from unpermitted releases.

Additionally, hazardous air pollutant exposure is not the only stressor the community is experiencing. Census tracts in the study area suffer from increased rates of cardiac arrest at rates two times higher than the remainder of the city, and ambulance treated asthma attacks at rates six times higher than the remainder of the city. The ZIP codes in the study area are TIER 1 (highest priority) ZIP codes for targeted public health intervention for COVID-19.

2. Community Involvement

A. Community Partnerships (15 pts):

HHD is partnering with local environmental and grassroots groups (Air Alliance Houston (AAH), Houston Wilderness (HW), Community Lattice), neighborhood groups (Botanic Gardens), schools (Milby and Chavez High School), and city council (CM Gallegos), with help from national environmental groups (Environmental Defense Fund (EDF) and Environmental Integrity Project (EIP)). The local, neighborhood, school and city council partners have deep roots in Meadowbrook/Allendale, Pecan Park, and Park Place with a common mission of protecting the public from environmental harms. HHD engaged these partner organizations in the design of this project and in the development of this application, and they have provided letters of support outlining their role in and commitment to the project, if selected for funding. Also, if funded, HHD will continue to convene these partners as the project is implemented. HHD and partners will have a kickoff meeting, and regular meetings every six months to discuss the overall project. HHD and partners involved in monitoring, Component 1 (AAH, Schools, CM Gallegos, Botanic Gardens and EDF) will meet monthly during the monitoring phase. HHD and partners involved in education and action, Component 2 (AAH, Schools, CM Gallegos, EDF, EIP, Botanic Gardens, HW) will meet monthly during the education and action phase.

B. Community Engagement (10 pts):

HHD is partnering with the community groups (AAH, Schools, CM Gallegos, Botanic Gardens) in Component 1, monitoring design and implementation including to: locate the passive monitors, design the mobile driving route, identify interns from the Milby and Chavez High School communities. For example, Air Alliance Houston (AAH) will serve as a lead connector to residents and leaders in the Meadowbrook/Allendale, Pecan Park, and Park Place neighborhoods to convey the project significance and value to the communities and to enlist their direct participation as *air monitor hosts* and spokespeople. AAH will consult with the school project partners, CM Gallegos and the Botanic Gardens, engage individual residents in these neighborhoods as well as the participation of the following types of community groups and locations: East Lawndale Civic Club, Glenbrook Civic Club, Houston Community College Southeast , Houston Gateway Academy, Mission Milby Community Development Corporation, Park Place Civic Club, Park Place Elementary School, Patterson Elementary School, Raul Yzaguirre School for Success, Thai Xuan Village, United Methodist Parish, Wellness on Wheels (WOW), and Yes Prep East End.

Community *air monitor hosts* will be compensated for their time and expenses both for the placement and collection of the air monitoring technology and for their involvement in project-related gatherings. Air monitor hosts will receive training from AAH as Air Quality Ambassadors using a proven curriculum designed for community air monitoring volunteers. They will also be convened routinely in an advisory role to provide feedback on project design and implementation. Once data are collected, the ambassadors will have opportunities to assist with interpretation based on their lived experience in Meadowbrook/Allendale, Pecan Park, and Park Place and then assist with the creation of local Action Plans for the improvement of air quality in their neighborhoods. In addition, and for the purposes of further transparency and engagement with the community, HHD and partners will identify as many venues and opportunities as possible to present the project and hear directly from residents.

HHD is partnering with the community groups (AAH, Schools, CM Gallegos, Botanic Gardens, EIP and HW) in Component 2, education and action including to: locate the passive monitors, design the mobile driving route, identify interns from the Milby and Chavez High School communities.

3. Environmental Justice and Underserved Communities (10 pts):

The project area includes three neighborhoods: Pecan Park, Park Place, and Meadowbrook/Allendale. According to EJ screen, the census tracts in the study area rank among the worst percentiles for cancer risk, proximity to superfund and Risk Management Plan (RMP) facilities, demographics, linguistically isolated and education (Table 1). In addition, both ZIP codes in the project (77017 and 77012) are a priority for COVID-19 intervention because they are ranked the most vulnerable in the city with a COVID Community Vulnerability Index of 0.97 and 0.99 ranking 33 and 14th worst out of 104 ZIP codes in the city. In addition, 77012 has the second highest COVID-19 positivity rate in the city with a positivity rate of 0.34, and 77017 is third highest with a positivity rate of 0.33. Furthermore, four of the census tract block groups are in the high-rate region of the city for asthma attack, cardiac arrest, or both (Raun et al., 2013 and 2015)

EJ Screen Results:

Census Tract (Block Group)	Neighborhood	EJScreen Index				Linguistically Isolated	Less than High School Education	High Rate Region
		2017 Air Toxics Cancer Risk	Superfund Proximity	Risk Management Facility Proximity	Demographic			
		Percentile						
3115 (3)	Pecan Park	96	81	97	84	97	98	
3201 (2)	Park Place	89	94	94	90	94	97	Asthma
3202 (1)	Park Place (Milby Park Monitor)	93	94	98	87	96	98	
3202 (3)	Park Place	75	87	90	89	97	88	
3202 (4)	Park Place	96	96	98	91	91	74	
3205 (1)	Meadowbrook/Allendale TPC Site	96	98	99	89	88	95	
320601 (1)	Meadowbrook/Allendale	95	97	98	88	94	95	
320602 (1)	Meadowbrook/Allendale	94	98	97	97	95	99	Cardiac
320602 (2)	Meadowbrook/Allendale	94	98	98	91	93	93	Cardiac
320602 (3)	Meadowbrook/Allendale (Cesar Chavez Monitor)	92	97	97	92	95	98	Cardiac

Example percentile interpretation: If your results indicate that an area is at the 97th national percentile for cancer risk, this means that the area is an equal or higher % of cancer risk than where 97% of the US population lives.

4. Environmental Results (20 pts)-Outcomes, Outputs and Performance Measures:

A. Expected Project Output and Outcomes (10 points)

Outputs:

- Improved understanding of link between HAP ambient air concentrations and the likely source(s) in the community.
- Identification and characterization of HAP hotspots within the community that are of concern and require continued monitoring and are targets for action/further investigation.
- A summary of sampling results and financial expenditures for the preceding quarter supplied to the EPA.
- Final report – a final report detailing overall project activities, achievements, results, technical accomplishments, quality assurance results, quality management plan, and outcomes to be submitted to the EPA.
- A community map with pollution hotspots. The community map will allow the community to make informed decisions regarding community health decisions.
- Confirmation of TPC/Goodyear plant area as the prime polluters, or identification of a tertiary polluter. The community can use this information to argue for TCEQ to deny the permit.

- Strengthening trust/partnership between city and community groups through consistent communication and educational meetings
- Training of student interns (exact number to be determined)

Short-term Outcomes:

- HAP monitoring will lead to identification of hot spots in the communities.
- Increased community awareness of HAPs in the atmosphere.
- Improved air quality models of the area.
- Community interns become immediate champions for the communities' environmental health

Midterm Outcomes:

- Projects to mitigate the impacts of air pollution through community education efforts
- Projects to help communities stop further expansion of known polluters in their area.

Long-term Outcomes:

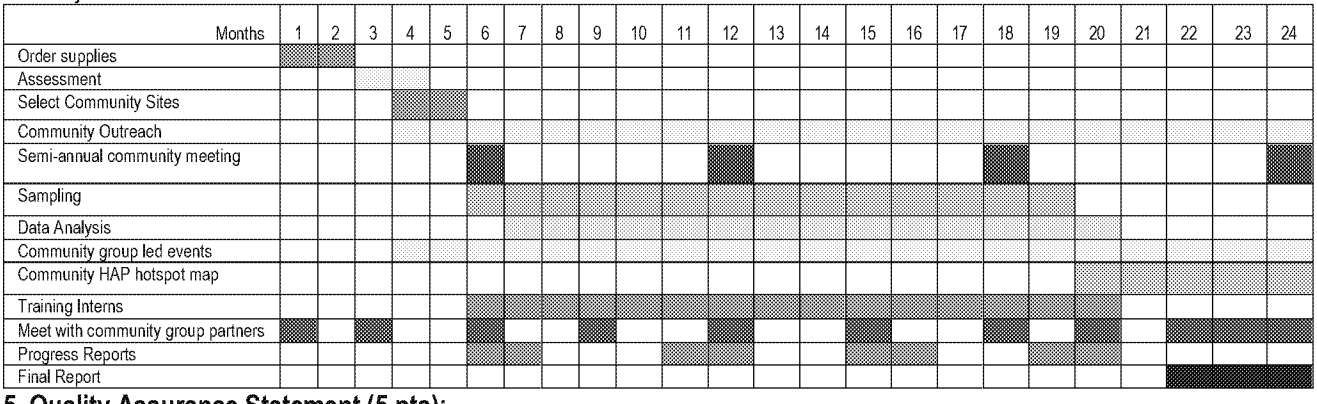
- Expansion of the surveillance area to include more communities that are at risk
- Community groups continue supporting communities' air related concerns and activities.
- Standardization of surveillance methods and reporting
- Sustainable solutions to air quality concerns, including how to bring the information to the attention of law makers, understanding what local sector air permits allow, feasible legislative or policy changes, etc.

B. Performance Measures and plan (5 points)

- Air sampling and monitoring over the course of 1 year
- Map highlighting areas that are picking up high levels of HAPs
- Biweekly measurements of the baseline of HAPs
- Semi-annual meetings to update the community groups
- Community partner programs, and active community participation

C. Timeline and Milestones

Project Timeline and Milestones:



5. Quality Assurance Statement (5 pts):

Under this criterion, EPA will evaluate the quality assurance and quality control practices that will be applied during the project to ensure that the results obtained satisfy the project objectives.

6. Programmatic Capability and Past Performance (15 pts):

A. (5 points) Past Performance

HHD has a successful track record of working with EPA and other Federal entities on previous projects of similar scope. Examples include:

1) Community Scale Air Toxics Ambient Monitoring Grant (XA-01F41301-4) received 1/1/2018 for $494,024.00- objective of near-source characterization of high-risk formaldehyde, precursors and other HAPs posing significant risk in Houston to inform evaluation of emission reduction measures (Project Officer: Mariama Mitchell, Grant ID number: XA-01F41301-4, Project Start: 1/1/2018 and Project End: 6/30/2021).

2) Community Scale Air Toxics Ambient Monitoring Grant (XA-96665901-5) received 6/30/2008 for $643,112.00- objective of identifying, measuring and analyzing previously unknown or underestimated HAP air

toxics emission sources in the Houston Ship Channel area using DIAL technology for sampling (Project Officer: Aunjanee Gautreaux, Grant ID number: XA-96665901-5, Project Start: 6/30/2008 and Project End: 5/31/2011); 3) Local Air Toxics Monitoring Grant (XA-96620501-2) received 5/22/2006 for $499,657.00- established a mobile ambient air monitoring lab to measure air toxics in the Houston Ship Channel area (Project Officer: Aunjanee Gautreaux, Grant ID number: XA-96620501-2, Project Start: 5/22/2006 and Project End: 3/31/2010); and 4) 105 Pass Through Monitoring Grant with a yearly amount of $388,427.00.

B. (5 points) Reporting Requirements-

For all project grants, HHD has consistently provided proper, timely documentation of grant progress. HHD has continually submitted project-specific reports to EPA in a manner consistent with stated timeframes. For all projects, project personnel have ensured that required progress reports and quality assurance documents reached the EPA Project Manager before the stated cut-off dates. Final reports were submitted within the agreed time frame and to EPA's satisfaction.

C. (5 points) Staff Expertise-

Experience and expertise of selected project personnel are summarized below:
Dr. Loren Hopkins will serve as Project Director. Dr. Hopkins is an air pollution health risk expert in the Houston area with over twenty-five years of experience. She serves as the Chief Environmental Science Officer for the city and has a dual position as assistant research professor in the Department of Statistics at Rice University. Dr. Hopkins has published extensively and has successfully managed federal grant projects from $80,000 to $15,000,000 in size, and a staff of over 40 talented individuals. She has a career total of about $300,000,000 total grants managed, and most recently managed the grant "Near-Source Characterization of High-Risk Formaldehyde." She holds a B.S Geophysics from the University of Texas, and M.S. and PhD in Environmental Science, from Rice University.

Environmental Defense Fund (EDF) will provide in-kind support and assistance to support the success of this proposal. Specifically, Dr. Grace Tee Lewis and Dr, Elena Craft will assist in coordinating this monitoring effort with other regional monitoring efforts planned or underway and Ms. Shannon Thomas will assist in identifying students through the environmental youth councils to participate in the monitoring and training efforts. The city has had a long-standing, successful collaboration with EDF on monitoring efforts across the city.

Air Alliance Houston (AAH) is a 501(C)3 advocacy organization that has been working to reduce the public health impacts from air pollution in the Greater Houston Area for over 30 years. AAH has deep roots in environmental justice communities and works directly with residents, community groups, elected officials, and other stakeholders to build a local movement for clean air policies and practices. For the project proposed here, AAH will serve as a connector to leaders in Meadowbrook/Allendale, Pecan Park, and Park Place to serve as air monitor hosts and spokespeople for the importance of air quality to community health.

EIP is a nonprofit dedicated to strict and fair enforcement of the nation's anti-pollution laws. EIP has extensive Clean Air Act, air toxics, and regulatory expertise and has worked in partnership with Houston Health Department, Air Alliance Houston and the community on air quality matters in the Houston area, including an EPA Community Air Quality Monitoring project focused on formaldehyde (EPA-OAR-OAQPS-17-03).

Houston Wilderness (HW) is a non-profit environmental policy organization that works with a broad-based alliance of business, environmental and government interests to protect and promote the 10 diverse ecoregions of the 15+ county area around Houston, Galveston Bay, and the Gulf of Mexico, including coastal prairies, forests, wetlands, and waterways. All of HW's regional policy initiatives – from large-scale native tree plantings and research on native grass and tree species to restoration of hundreds of acres of public buy-out lands - involve enhancement of vital ecosystem services related to air quality, water quality, flood and erosion control, organic carbon sequestration, phytoremediation and habitat, which overlap with HHD's work in the myriad of EJ and high health risk communities around Greater Houston.

7. Budget (20 pts):

This budget spans one year of purchasing. The project timeline is 24 months to include time for interpretation and

reporting time or delays.

Personnel ($50,122 per year)

Project Director (0.0.5FTE)

Loren Hopkins, PhD, PI, City of Houston Chief Environmental Science Officer and Chief of Data service program, will serve as project director in-kind and monitor the overall operations of the project and generate the final report.

Project Manager (0.05FTE)

Nguyen Ly, will serve as the project manager and will be responsible for the day-to-day activities, working closely with Dr. Hopkins, project staff and collaborative partners to implement the project. The manager will supervise and monitor the activities of the BPCP staff and will have the overall responsibility of ensuring the instruments are properly maintained and calibrated to meet project objectives. He will ensure that equipment is available for project use and does not conflict with other department projects.

Chemist IV (0.20FTE)

Peter Chen will serve as the project chemists will ensure that Mobile Ambient Air Monitoring Lab (MAAML) GC/MS system and other instruments are calibrated and ready for use during deployment. Chemists will maintain QC data to show that instruments are operating within normal quality control limits and use meteorological data to identify potential emission sources, when feasible. He will collect and evaluate instrument data during the project, produce trend graphs and send that information to the project manager, as requested, and will work closely with other project members.

Chemist III (1.0FTE)

TBD, Chemist III (1) 100% in year 1), under the direction of the Project Manager, will maintain the monitors. Program the instruments, perform daily calibration checks, change solvents and empty wastes, download data and perform all routine instrument maintenance, as needed. The Chemist will assume the overall responsibility for maintaining all the units to be deployed during the study and keeping them in near continuous operation. Summarize in the consultation form sent to the provider.

Fringe Benefits ($27,567.10 per year): The rate of fringe benefits for staff at the City of Houston is 55%.

Travel ($1,740 year 1 and $870 year 2): Project team members will need to travel between work sites, community partner organizations and partner meetings. Attend training and conferences to meet the project goals.

Equipment ($25,000 year 1): Purchase and installation of 3 Aero Laser AL4120 units to continuously monitor formaldehyde within the Houston area at 3 sites selected by the Project Director to facilitate meeting the project goals and objectives.

Program Supplies and lab analysis ($60,000 year 1): Program supplies and lab analysis will include consumables for the AROMA and other miscellaneous supplies necessary to keep the fixed site instruments and the MAAML in operation during testing.

Contractual ($161,000 for 2 year) Air Alliance Houston ($62,000 per year): Air Alliance Houston (AAH) will lead the Community Involvement component of the proposed project by providing the following activities: Use community engagement strategies and current community relationships to identify and confirm host locations in each focus neighborhood for air monitoring technology; Support community monitor hosts with compensation, training, and technical assistance; Conduct the Air Quality Ambassador (AQA) training curriculum for community members to learn about air quality and the monitoring technology; Routinely convene the Ambassadors to advise on the project and provide lived local insights what is seen by the air monitor technology; Provide support to the interpretation of monitor results including integration into existing local air monitoring dashboards; and Guide community members and stakeholders in the development of local-level Action Plans for improved air quality policies and practices.

Environmental Integrity Project ($10,000 per year): EIPs are important environmental advocacy groups in the Houston area and will provide a portion of the outreach component of this proposal.

City of Houston Mayors Youth council ($7000 per year): Fund tool kits to 7 schools. Each Toolkit consists of STEMM content addressing climate and EJ topics in a fun, accessible format, with emphasis on how students can use STEMM skills to address these complex challenges. Toolkits will include a detailed lesson plan and hands-on activity, supplies for a one-hour lesson, and funds for a pre-arranged field trip, when possible. These lessons are designed for easy implementation and replication by any stakeholder

Houston Botanic Gardens (10,000 per year): They will serve as adviser where the sampling should happen in the

community and conduct education activities and the biotical gardens.
Other ($75,050 grant period): laptop, monitors for Picarro, trailer to host the equipment, training and software needs for the staff on the project.
Budget Table:

Personnel	EPA Funding			Cost-
	Y1	Y2	Y3	
(1) Project Director (120,000 @5% FTE),	0	0	0	12,000
(1) Project Manager (96,000 @5% FTE)	0	0	0	9600
(2) Chemist IV (73,000@ 20%)	0	0	0	29,200
(1) Chemist III ($24/hr 100% FTE)	50,122	50,122	0	0
TOTAL PERSONNEL	50,122	50,122	0	43,000
Fringe Benefits				
FICA, Health Benefits, Retirement 55% of Salary and Wages	27,567	27,567	0	21,340
TOTAL FRINGE BENEFITS	27,567	27,567	0	21,340
Travel				
Travel for Project Manager and staff: Mileage @ $0.58 per mile. (250 miles per month) x 18 month ($145 per month), site visits, training, conferences	1,740	870	0	
TOTAL TRAVEL	1,740	870	0	
Equipment (Upgrading AROMA to measure Ethylene Oxide) ea.	25,000			
Installation & Training	3,000	0	0	
TOTAL EQUIPMENT	28,000	0	0	
Supplies and lab analysis				
Diffusion Caps, 3 Packs @ 271 Each FLM Carbopack X Deactivated Stainless Steel TD Tube, 3 packs @ 1080 each	60,000	0	0	
TOTAL SUPPLIES and lab analysis	60,000	0	0	
Contractual				
COH Mayor's Youth Council	7,000	0	0	
Air Alliance Houston (AAH)	62,000	62,000	0	
Houston Biotical Gardens	10,000	0	0	
Environmental Integrity Project (EIP)	10,000	10,000		
Other Contracts	0	0	0	0
TOTAL CONTRACTUAL	89,000	72,000	0	
Other				
Computer Supplies (Laptop, USB, Monitors, Hot Spot)	5000			
Temp Employees	20,000	10,000		
Trailer	35,000			
Training	2,000	700		
Software Installation	2,350			
TOTAL OTHER	64,350	10,700	0	
TOTAL DIRECT CHARGES	320,779	161,259	0	
Indirect Charges Federal Negotiated Indirect Cost Rate = 17.9%	8,972	8,972	0	6,945.20
(Indirect Rate X Personnel = Indirect Costs)	8,972	8,972	0	6945.20
TOTAL INDIRECT	9,974	9,974	0	6,945.20
TOTAL FUNDING	329,751	170,23111	0	67,085.20
TOTAL PROJECT COST (federal and non-federal)	567,067	0	0	

STATE AND LOCAL GOVERNMENTS RATE AGREEMENT

EIN: 74-6001164

DATE:12/12/2019

ORGANIZATION:

City of Houston - Department of Health & Human Services

Bob Lanier Bldg., 611 Walker St, 10th Floor

Houston, TX 77002

FILING REF.: The preceding agreement was dated 12/11/2019

The rates approved in this agreement are for use on grants, contracts and other agreements with the Federal Government, subject to the conditions in Section III.

SECTION I: INDIRECT COST RATES

RATE TYPES: FIXED FINAL PROV. (PROVISIONAL) PRED. (PREDETERMINED)

	EFFECTIVE PERIOD				
TYPE	**FROM**	**TO**	**RATE(%)**	**LOCATION**	**APPLICABLE TO**
FIXED	07/01/2019	06/30/2020	17.90	On Site	All Programs
PROV.	07/01/2020	06/30/2023			Use same rates and conditions as those cited for fiscal year ending June 30, 2020.

*BASE

Direct salaries and wages including all fringe benefits.

SECTION II: SPECIAL REMARKS

TREATMENT OF FRINGE BENEFITS:

The fringe benefits are specifically identified to each employee and are charged individually as direct costs. The directly claimed fringe benefits are listed below.

TREATMENT OF PAID ABSENCES

Vacation, holiday, sick leave pay and other paid absences are included in salaries and wages and are claimed on grants, contracts and other agreements as part of the normal cost for salaries and wages. Separate claims are not made for the cost of these paid absences.

Equipment Definition -
Equipment means article of nonexpendable, tangible personal property having a useful life of more than one year(s) and an acquisition cost of $5,000 or more per unit.

Fringe Benefits -
FICA
Disability Insurance (Long Term)
Worker's Compensation
Unemployment Insurance (Federal & State)
Health Insurance
Basic Life Insurance

This Rate Agreement is issued in accordance with the Customer Service Agreement (CSA) between DHHS/CAS and U.S. Department of Housing and Urban Development (HUD).

The next proposal based on actual costs for the fiscal year ending 6/30/19 is due in HUD office by 12/31/19.

SECTION III: GENERAL

A. LIMITATIONS:

The rates in this Agreement are subject to any statutory or administrative limitations and apply to a given grant, contract or other agreement only to the extent that funds are available. Acceptance of the rates is subject to the following conditions: (1) Only costs incurred by the organization were included in its indirect cost pool as finally accepted; such costs are legal obligations of the organization and are allowable under the governing cost principles; (2) The same costs that have been treated as indirect costs are not claimed as direct costs; (3) Similar types of costs have been accorded consistent accounting treatment; and (4) The information provided by the organization which was used to establish the rates is not later found to be materially incomplete or inaccurate by the Federal Government. In such situations the rate(s) would be subject to renegotiation at the discretion of the Federal Government.

B. ACCOUNTING CHANGES:

This Agreement is based on the accounting system purported by the organization to be in effect during the Agreement period. Changes to the method of accounting for costs which affect the amount of reimbursement resulting from the use of this Agreement require prior approval of the authorized representative of the cognizant agency. Such changes include, but are not limited to, changes in the charging of a particular type of cost from indirect to direct. Failure to obtain approval may result in cost disallowances.

C. FIXED RATES:

If a fixed rate is in this Agreement, it is based on an estimate of the costs for the period covered by the rate. When the actual costs for this period are determined, an adjustment will be made to a rate of a future year(s) to compensate for the difference between the costs used to establish the fixed rate and actual costs.

D. USE BY OTHER FEDERAL AGENCIES:

The rates in this Agreement were approved in accordance with the authority in Title 2 of the Code of Federal Regulations, Part 200 (2 CFR 200), and should be applied to grants, contracts and other agreements covered by 2 CFR 200, subject to any limitations in A above. The organization may provide copies of the Agreement to other Federal Agencies to give them early notification of the Agreement.

E. OTHER:

If any Federal contract, grant or other agreement is reimbursing indirect costs by a means other than the approved rate(s) in this Agreement, the organization should (1) credit such costs to the affected programs, and (2) apply the approved rate(s) to the appropriate base to identify the proper amount of indirect costs allocable to these programs.

BY THE INSTITUTION:

City of Houston - Department of Health & Human Services

(INSTITUTION)

(SIGNATURE)

M. ARIF RASHEED

(NAME)

Deputy Director

(TITLE)

1/3/2020

(DATE)

ON BEHALF OF THE FEDERAL GOVERNMENT:

DEPARTMENT OF HEALTH AND HUMAN SERVICES

(AGENCY)

Darryl W. Mayes -S

Digitally signed by Darryl W. Mayes -S
DN: c=US, o=U.S. Government, ou=HHS, ou=PSC, ou=People, 0.9.2342.19200300.100.1.1=2000131659, cn=Darryl W. Mayes -S
Date: 2019.12.27 20:25:16 -05'00'

(SIGNATURE)

for Arif Karim

(NAME)

Director, Cost Allocation Services

(TITLE)

12/12/2019

(DATE) 2195

HHS REPRESENTATIVE: Katherine Tang

Telephone: (214) 767-3261

EDF
ENVIRONMENTAL DEFENSE FUND
Finding the ways that work

March 20, 2022
Loren Hopkins
Chief Environmental Science Officer
Bureau Chief Community and Children's Environmental Health
Houston Health Department

Dear Dr. Hopkins:

We are thrilled to support the Houston Health Department's grant application entitled, "Enhanced Air Quality Monitoring in High-Risk Houston EJ Communities through Local Government and Community Partnership" in response to EPA's Request for Applications opportunity, EPA-OAR-OAQPS-22-01. We appreciate the tremendous effort that HHD and project partners have spent in developing this proposal to resolve issues related to elevated concentrations of air pollutants such as ethylene oxide and formaldehyde for which there is little to no existing monitoring. The proposed efforts here were designed to dovetail and leverage other monitoring proposals submitted as part of the RFP. Collectively, baseline data for compounds for which there is little monitoring data would fill a critical gap in the existing air quality network and would provide communities within the Houston region more information about potential exposures that may impact their personal health.

Having partnered with HHD, community-based organizations such as AAH, and community groups closely over the years, Environmental Defense Fund (EDF) is confident in the city's leadership in supporting project partners.

We understand the extreme and disparate burden that air pollution has brought to each of these communities and have admired the proactive efforts of the many dedicated city officials such as yourself who have taken steps to support bringing low-cost sensor networks online. While not included as a formal partner in the proposal, EDF is fully committed to supporting you and your project partners in fulfilling proposal activities. As this work aligns closely with our own organizational priorities, we are prepared to provide any level of technical support and guidance needed for the duration of the project, including participating in regular meetings with project partners. Dr. Grace Tee Lewis and myself are fortunate to have had the opportunity to witness the success that arises when a committed team pursues a common goal; indeed our efforts together are some of the most rewarding elements of our work; we are proud of all that has been accomplished while we acknowledge the magnitude of work that still needs to be done.

EDF greatly appreciates the leadership that you have demonstrated at HHD to ensure better air quality in the region, and we look forward to working together. We are grateful for the opportunity to collaborate with you.

Sincerely,

Elena Craft, Ph.D.
Senior Director, Climate and Air, EDF

301 Congress Avenue
Austin, TX 78701

T 512 478 5161
F 512 478 8140
edf.org

New York, NY / Austin, TX / Bentonville, AR / Boston, MA / Boulder, CO / Raleigh, NC
Sacramento, CA / San Francisco, CA / Washington, DC / Beijing, China / La Paz, Mexico

ROBERT GALLEGOS
HOUSTON COUNCIL MEMBER
DISTRICT I

March 22, 2022

Loren Hopkins, PhD
Houston Health Department, Environmental Division
8000 N. Stadium Dr., 2nd Floor
Houston, Texas 77054
loren.hopkins@houstontx.gov

Re: RFA NUMBER: EPA-OAR-OAQPS-22-01 Letter of Commitment for the Houston Health Department's Grant Proposal Regarding "Enhanced Air Quality Monitoring for Communities"

Dear Dr. Hopkins,

This letter indicates my support and commitment to the City of Houston Health Department regarding their proposal for "Enhanced Air Quality Monitoring in High-Risk Houston EJ Communities through Local Government and Community Partnership Program" submitted in partnership with multiple area community groups.

The proposed project will focus on: (1) enhancing monitoring, (2) education, and (3) sustainable solutions to improve the air quality in the Allendale/ Meadowbrook, Park Place, and Pecan Park communities. These communities have historically suffered from higher concentrations of hazardous air pollutants – specifically, 1,3-butadiene, benzene, formaldehyde, and ethylene oxide – compared to other parts of the city. As you are aware, in 2021 alone, the Houston Health Department received over 40 air pollution complaints in the area ZIP codes.

As the City Council Member representing this area (District I), I am very concerned about the air quality in these communities and the pollution impacts on the environment surrounding Sims Bayou. Data generated from this proposal will assist me in educating my fellow elected leaders, as well as federal and state regulators, about the urgency and significance of this problem so that sustainable solutions can be instituted. In addition, the grant will complement my own support of area school environmental youth council members by providing the members with opportunities to participate as paid interns with the city to assist in the air monitoring, data interpretation, and identification and implementation of solutions.

I support this important project and commit to assisting the partnership.

Respectfully,

Robert Gallegos
Houston Council Member
District I

TELEPHONE (832) 393-3011 • 900 BAGBY, 1ST FLOOR • HOUSTON, TX 77002
districti@houstontx.gov

March 22, 2022

City of Houston Health Department
8000 N. Stadium Dr., 2nd Floor
Houston, Texas 77054
Attn: Loren Hopkins, PhD

Subject: Enhanced Air Quality Monitoring in High-Risk Houston EJ Communities through Local Government and Community Partnership

Dear Dr. Hopkins:

Air Alliance Houston (AAH) is pleased to provide this Letter of Support to the Houston Health Department (HHD) to support the proposed project for enhanced air quality monitoring in the Houston-area neighborhoods of Allendale/Meadowbrook, Pecan Park, and Park Place.

AAH is a 501©3 advocacy organization working to reduce the public health impacts of air pollution and advance environmental justice in Houston/Harris County, TX. One of our core strategies is to equip residents in fenceline communities with real-time information about the quality of their air, so they can take steps to protect their health and take action to oppose polluters through advocacy. We do this through our own Community Air Monitoring Program (CAMP), which has placed 20+ air quality monitors in nine local Environmental Justice communities throughout Houston.

We believe that addressing the increased cancer risk from air pollution is an urgent public health need. EPA Administrator Michael Regan recognized this need as well during his "Journey to Justice" tour of the Gulf Coast that included Houston. In direct response to this visit, the EPA proposed stronger standards for carcinogen exposure in Texas and across the country. Current regulatory monitoring near the Allendale/Meadowbrook, Pecan Park, and Park Place communities in Houston suggests a higher level of exposure to cancer-causing agents compared to other locations. The air samples and subsequent modelling that this project will produce will be instrumental to validating these trends, confirming the source of the exposure, and equipping community members to take action in response.

AAH is committed to supporting the project by serving as one of the leads for Community Involvement. In this role, we will provide the following types of activities:

- Use community engagement strategies and current community relationships to identify and support residential host locations in each focus neighborhood for air monitoring technology;
- Conduct the Air Quality Ambassador (AQA) training curriculum for community members to learn about air quality and how air monitoring results can be used for public health action;
- Routinely convene the Ambassadors to advise on local air monitoring (including the proposed project) and provide lived local insights on what is detected by air monitoring technology; and
- Guide community members and stakeholders in the development of local-level Action Plans for improved air quality policies and practices.

Based on decades of experience in successfully managing complex federal grants, we believe HHD is the ideal partner to act as the technical lead and grant administrator for this proposal, and we look forward to working together to meet our mutual goals of public and environmental health.

Sincerely,

Jennifer Hadayia

Jennifer M. Hadayia, MPA
Executive Director, Air Alliance Houston

1206 San Antonio Street
Austin TX, 78701
www.environmentalintegrity.org

March 23, 2022

Loren Hopkins, PhD
Houston Health Department, Environmental Division
8000 N. Stadium Dr., 2nd Floor
Houston, Texas 77054
loren.hopkins@houstontx.gov

Re: RFA NUMBER: EPA-OAR-OAQPS-22-01 Letter of Commitment for the Houston Health Department's Grant Proposal Regarding, "Enhanced Air Quality Monitoring in High-Risk Houston EJ Communities through Local Government and Community Partnership"

Dear Dr. Hopkins:

Environmental Integrity Project is a nonprofit dedicated to strict and fair enforcement of the nation's anti-pollution laws. EIP has extensive Clean Air Act, air toxics, and regulatory expertise and has worked in partnership with Houston Health Department, Air Alliance Houston and the community on air quality matters in the Houston area, including an EPA Community Air Quality Monitoring project focused on formaldehyde (EPA-OAR-OAQPS-17-03).

We write to express our strong support for the Houston Health Department's grant proposal to monitor unhealthy levels of cancer-causing hazardous air pollutants, specifically, 1,3 butadiene, benzene, formaldehyde, and ethylene oxide, which are a significant health risk to Houstonians. The underlying research regarding exposure in the Houston area is important information that is not generally known to experts in the field including federal and state regulators. Further monitoring, coupled with thoughtful and accurate dissemination of the study's findings, is crucial in order to better understand the science behind this issue, to inform the public and regulators charged with reviewing air toxics standards, and to promote sound policies.

As part of this proposal, EIP will advise grant partners regarding sustainable solutions to air quality concerns based on the proposed air monitoring, including how to bring the information to the attention of law-makers and the public, and potential policy improvements driven by the science. Information developed for affected communities and any policies that result from this project will continue to benefit the community in the future, beyond this project.

When they passed the federal Clean Air Act more than 30 years ago, Congress knew that science and industry is never stagnant and always progressing. So, Congress wisely included

1206 San Antonio Street
Austin TX, 78701
www.environmentalintegrity.org

mechanisms to strengthen pollution standards based on new information and new technologies. For example, the law requires EPA to review its toxics standards periodically and update them based on new information and new technology. Similarly, the law allows citizens to petition EPA to add new substances to the Clean Air Act's toxics list. This grant proposal, if funded, will provide exactly the sort of new information that Congress envisioned. Thus, this important monitoring study would not only provide information to help community groups and environmental advocates better understand air quality in Houston, but also would be a basis for strengthening federal rules. For these reasons, we strongly support the grant application.

Ilan Levin, Associate Director
ilevin@environmmentalintegrity.org
(512) 619-7287

HOUSTON
WILDERNESS
It's Our Nature

March 22, 2022

Loren Hopkins, PhD
Houston Health Department, Environmental Division
8000 N. Stadium Dr., 2nd Floor
Houston, Texas 77054
loren.hopkins@houstontx.gov

Re: RFA NUMBER: EPA-OAR-OAQPS-22-01 Letter of Commitment for the Houston Health Department's Grant Proposal Regarding, "Enhanced Air Quality Monitoring for EJ Communities"

Dear Dr. Hopkins:

This letter provides our support and commitment to the City of Houston Health Department (HHD), regarding their proposal for *Enhanced Air Quality Monitoring in High-Risk Houston Environmental Justice (EJ) Communities* through the Local Government and Community Partnership Program.

The proposed project is focused on: (1) enhancing air quality monitoring, (2) education, and (3) sustainable solutions to air pollution in the EJ-challenged communities of Allendale/ Meadowbrook, Park Place and Pecan Park. These communities are experiencing higher concentrations of cancer-causing hazardous air pollutants--specifically, 1,3 butadiene, benzene, formaldehyde, and ethylene oxide--compared to other parts of Greater Houston. In 2021 alone, the Houston Health Department received over 40 air pollution complaints in these area ZIP codes. EPA's NATA (2014) indicated the cancer risk in this area as 57 in a million and using 2021 1,3 butadiene fixed site monitor data, this risk now increases by 218% to 125 cases in a million.

As you know, Houston Wilderness (HW) is a non-profit environmental policy organization that works with a broad-based alliance of business, environmental and government interests to protect and promote the 10 diverse ecoregions of the 15+ county area around Houston, Galveston Bay, and the Gulf of Mexico, including coastal prairies, forests, wetlands, and waterways. All of HW's regional policy initiatives – from large-scale native tree plantings and research on native grass and tree species to restoration of hundreds of acres of public buy-out lands - involve enhancement of vital ecosystem services related to air quality, water quality, flood and erosion control, organic carbon sequestration, phytoremediation and habitat, which overlap with HHD's work in the myriad of EJ and high health risk communities around Greater Houston.

We continue to be committed to the strong partnership and working relationship that HW staff has with you and HHD as we move forward with ES enhancements in critical EJ communities around the city. In past collaborative projects, we worked together promoting the connection between environment, health and climate change, and identifying native trees for Houston that provide optimal

HOUSTON WILDERNESS
It's Our Nature

ecosystem services to reduce air and water pollution – called "Super Trees," (Hopkins, L.P., January-Bevers, D.J., Caton, E.K., Campos, L.A. (2021). A Simple Tree Planting Framework to Improve Climate, Air Pollution, Health, and Urban Heat in Vulnerable Locations using Non-traditional Partners. *Plants, People, Planet*, 1–15.)

Our current ES-enhancement projects with HHD include 1) the EPA-funded, *Houston Inspira* Public Health Storytelling Education Campaign in five (5) EJ communities in Greater Houston, and 2) the *Houston Agri-Power* (HAP) Project to address public education and workforce training in two (2) other EJ communities disproportionately impacted by environmental pollution, extreme climate events and COVID-19 which have exacerbated these disparities, especially food and nutrition insecurity and public health.

Under the proposed project - *Enhanced Air Quality Monitoring for certain EJ Communities* – another set of EJ communities are being targeted to deal with the pollution impacts on the environment surrounding Sims Bayou. We commit to working with the community and businesses to understand the pollution data generated from this proposal, advise the community on the ES benefits of targeted native trees for pollution reduction, and facilitate and implement large-scale native *Super Tree* plantings in the community. These efforts also coincide with the City of Houston's *Climate Action Plan*'s Goal 3 for energy transition: to restore, protect, and enhance Houston's natural ability to capture and store carbon, and the *Resilient Houston Plan*, Goals 6, 11 and 16 related to large-scale native tree plantings, increases in GSI projects and undeveloped regional lands as natural spaces.

We strongly believe that City of Houston Health Department's *Enhanced Air Quality Monitoring for Communities* projects are well equipped to continue to administer outreach and education and assistance to the citizens of Houston in order to make their living environment safer. I look forward to continuing our collaboration and developing programs that will maximize the good health of the Houston citizens while also enhancing ES around the region. Please contact me anytime with questions or comments.

Sincerely,

Deborah January-Bevers
President

Houston Botanic Garden

March 24, 2022

Loren Hopkins, PhD
Houston Health Department, Environmental Division
8000 N. Stadium Dr., 2nd Floor
Houston, Texas 77054
loren.hopkins@houstontx.gov

Re: RFA NUMBER: EPA-OAR-OAQPS-22-01 Letter of Commitment for the Houston Health Department's Grant Proposal Regarding, "Enhanced Air Quality Monitoring in High-Risk Houston EJ Communities through Local Government and Community Partnership"

Dear Dr. Hopkins:

The non-profit Houston Botanic Garden – a 132-acre urban oasis and living museum with 1,000 taxa – is dedicated to strict and fair enforcement of the nation's anti-pollution laws. We offer a curated collection of tropical, sub-tropical, and arid plants from around the world to enrich lives through discovery, education, and the conservation of plants and the natural environment.

We write to express our strong support for the proposal to monitor unhealthy levels of cancer-causing hazardous air pollutants – specifically, 1,3-butadiene, benzene, formaldehyde, and ethylene oxide – which pose a significant health risk to Houstonians. The underlying research regarding exposure in the Houston area is important information that is not generally known to experts in the field, including federal and state regulators. Further monitoring, coupled with thoughtful and accurate dissemination of the study's findings, is crucial in order to better understand the science behind this issue and to begin to inform the public and regulators charged with reviewing air toxics standards.

As part of this proposal, Houston Botanic Garden will advise the community and grant partners regarding optimal sampling locations within the target communities. Furthermore, the Garden will also conduct related educational activities through our education department. Through the monitoring and information shared in our classes, the communities will have valuable tools beyond this project.

When they passed the federal Clean Air Act more than 30 years ago, Congress knew that science and industry are never stagnant and always progressing. So, Congress wisely included mechanisms to strengthen pollution standards based on new information and new technologies. For example, the law requires EPA to review its toxics standards periodically and update them based on new information and new technology. Similarly, the law allows citizens to petition EPA to add new substances to the Clean Air Act's toxics list. This grant proposal, if funded, will provide exactly the sort of new information that Congress envisioned. Thus, this important monitoring study would not only provide information to help community groups and environmental advocates better understand air quality in Houston, but also would be a basis for strengthening federal rules. For these reasons, we strongly support the grant application.

Sincerely,

Claudia Gee Vassar
President & General Counsel
claudia@hbg.org